

In The Claims:

The following list of claims replaces all prior versions of the claims:

List of Claims:

Claim 1 (Currently amended): A method of reducing bacterial virulence of a pathogenic bacteria, comprising:

providing a virulent bacteria having a DNA methyltransferase (Dam) activity;

contacting the bacteria with an agent that alters the bacteria's native level of DNA methyltransferase (Dam) activity thereby altering the bacteria's native level of methylation of adenine in a GATC tetranucleotide of the bacteria, and thereby ~~inhibiting~~ reducing virulence of the bacteria.

Claim 2 (Original): The method of claim 1, wherein the agent reduces the bacteria's native level of DNA methyltransferase activity.

Claim 3 (Original): The method of claim 1, wherein the agent reduces the Dam activity by reducing the bacteria's level of expression of Dam.

Claim 4 (Original): The method of claim 1, wherein the agent reduces the Dam activity by blocking a Dam interaction site.

Claim 5 (Original): The method of claim 1, wherein the agent increases the bacteria's native level of DNA methyltransferase activity.

Claim 6 (Original): The method of claim 1, wherein the agent reduces the bacteria's native level of methylated adenine in a GATC tetranucleotide by inhibiting DNA methyltransferase activity.

Claim 7 (Original): The method of claim 1, wherein the agent increases the bacteria's native level of methylated adenine in a GATC tetranucleotide by increasing DNA methyltransferase activity.

Claim 8 (Currently amended): The method of claim 1, wherein the agent binds a Dam enzyme, and further wherein the Dam enzyme is responsible for the DNA methyltransferase (Dam) activity in the bacteria.

Claim 9 (Currently amended): The method of claim 1, wherein the agent binds a native sequence of a the bacteria and decreases expression of a Dam gene below a ~~normal~~ native level.

Claim 10 (Currently amended): The method of claim 1, wherein the agent binds a native sequence of a the bacteria and increases expression of a Dam gene below a ~~normal~~ native level.

Claim 11 (Previously Presented): The method of claim 1, wherein the agent alters Dam activity of a pathogenic bacteria selected from the group consisting of *Neisseria meningitidis*, *Pasteurella multocida*, and *Shigella spp.*

Claim 12 (Original): The method of claim 1, wherein the agent alters native Dam activity of a pathogenic bacteria selected from the group consisting of *Escherichia*, *Vibrio*, *Yersinia* and *Salmonella*.

Claim 13 (Original): The method of claim 12, wherein the pathogenic bacteria are a salmonella bacteria selected from the group consisting of *S. typhimurium*, *S. enteritidis*, *S. typhi*, *S. abortus-ovi*, *S. abortus-equi*, *S. dublin*, *S. gallinarum*, and *S. pullorum*.

Claim 14 (Original): The method of claim 12, wherein the pathogenic bacteria are *E. coli*.

Claim 15 (Original): The method of claim 12, wherein the bacteria are *V. cholerae*.

Claim 16 (Original): The method of claim 12, wherein the bacteria are *Y. psuedotuberculosis*.

Claim 17 (Currently amended): The method of claim ~~12~~ 1, wherein the agent alters native Dam activity of a pathogenic bacteria ~~the bacteria are~~ selected from the group consisting of *Shigella*, *Haemophilus*, *Bordetella*, *Neisseria*, *Pasteurella* and *Treponema*.

Claim 18 (Original): The method of claim 1, wherein the bacteria are *Haemophilus*.

Claim 19 (Original): A method of reducing pathogenicity of a pathogenic bacteria, comprising:

administering an agent that alters a pathogenic bacteria's native DNA adenine methylase (Dam) activity thereby altering the bacteria's native DNA methylation activity to an extent that the bacteria's pathogenicity is reduced.

Claim 20 (Currently amended): The method of claim 19, wherein the agent reduces the Dam activity by reducing the bacteria's level of expression of a Dam gene responsible for the DNA methyltransferase activity.

Claim 21 (Currently amended): The method of claim 19, wherein the agent reduces the Dam activity by blocking a Dam enzyme interaction site.

Claim 22 (Original): The method of claim 19, wherein the agent increases Dam activity.

Claim 23 (Original): The method of claim 19, wherein the agent decreases Dam activity.

Claim 24 (Currently amended): A method of treating a pathogenic bacterial infection by inhibiting proliferation of the bacteria, comprising the steps of:
administering to a subject infected with a the pathogenic bacteria a therapeutically effective amount of a composition comprising a pharmaceutically acceptable carrier and an active agent that alters the bacteria's native level of DNA methyltransferase (Dam) activity; and
allowing the agent to contact the bacteria for a period of time and under conditions so as to inhibit proliferation of the bacteria.

Claim 25 (Currently amended): The method of claim 24, wherein the agent reduces the Dam activity by reducing the bacteria's level of expression of a Dam gene responsible for the DNA methyltransferase activity.

Claim 26 (Currently amended): The method of claim 24, wherein the agent reduces the Dam activity by blocking a Dam enzyme interaction site.

Claim 27 (Currently amended): The method of claim 24, wherein the agent reduces the level of Dam activity thereby reducing methylation of adenine in a GATC tetranucleotide in the bacteria, thereby inhibiting ~~virulence~~ proliferation of the bacteria.

Claim 28 (Currently amended): The method of claim 24, wherein the agent increases the level of Dam activity thereby increasing methylation of adenine in a GATC tetranucleotide in the bacteria, thereby inhibiting ~~virulence~~ proliferation of the bacteria.

Claim 29 (Original): The method of claim 24, wherein the subject is a mammal.

Claim 30 (Original): The method of claim 24, wherein the subject is a human.

Claim 31 (Original): The method of claim 24, wherein the administering is by a route selected from the group consisting of oral, injection, inhalation and topical.

Claim 32 (Currently amended): The method of treating bacterial infection in an individual comprising administering to the individual an agent that reduces the level or activity of a DNA methyltransferase thereby reducing methylation of adenine in a GATC tetranucleotide in the bacteria, thereby inhibiting the virulence of the bacteria.

Claim 33 (Original): The method of claim 32, wherein the reduction of the level of methylated adenine in a GATC tetranucleotide is effected by inhibiting DNA methyltransferase activity.

Claim 34 (Currently amended): A composition for controlling ~~bacterial~~ pathogenicity of a bacteria, comprising:

a carrier; and

a compound that alters native DNA adenine methylase (Dam) activity.

Claim 35 (Original): The composition of claim 34, wherein the carrier is a pharmaceutically acceptable carrier.

Claim 36 (Currently amended): The composition of claim 34, wherein the ~~agent~~ compound binds a Dam enzyme.

Claim 37 (Currently amended): The composition of claim 34, wherein the agent compound binds a native sequence of a bacteria and decreases expression of Dam below a normal level.

Claim 38 (Currently amended): The composition of claim 34, wherein the agent compound which binds a native sequence of a bacteria and increases expression of Dam above a normal level.

Claim 39 (Original): The composition of claim 34, wherein the bacteria is a pathogenic bacteria selected from the group consisting of *Neisseria meningitidis*, *Pasteurella multocida*, and *Shigella spp.*

Claim 40 (Currently amended): The composition of claim 34, wherein the agent compound alters native Dam activity of a pathogenic bacteria selected from the group consisting of *Escherichia*, *Vibrio*, *Yersinia* and *Salmonella*.

Claim 41 (Original): The composition of claim 40, wherein the pathogenic bacteria are a salmonella bacteria selected from the group consisting of *S. typhimurium*, *S. enteritidis*, *S. typhi*, *S. abortus-ovi*, *S. abortus-equi*, *S. dublin*, *S. gallinarum*, and *S. pullorum*.

Claim 42 (Original): The composition of claim 40, wherein the pathogenic bacteria are *E. coli*.

Claim 43 (Original): The composition of claim 40, wherein the bacteria are *V. cholerae*.

Claim 44 (Original): The composition of claim 40, wherein the bacteria are *Y. psuedotuberculosis*.

Claim 45 (Currently amended): The composition of claim ~~40~~ 34, wherein the compound alters native Dam activity of a pathogenic bacteria ~~the bacteria are~~ selected from the group consisting of *Shigella*, *Haemophilus*, *Bordetella*, *Neisseria*, *Pasteurella* and *Treponema*.

Claim 46 (Original): The composition of claim 45, wherein the bacteria are *Haemophilus*.